

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

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In the Matter of	)	
	)	
Telecommunications Relay Services,	)	CC Docket No. 98-67
and Speech-to-Speech Services for	)	
Individuals with Hearing and Speech	)	
Disabilities	)	
_____	)	

**Petition for Clarification**  
**Provision of and Cost Recovery for CapTel, An Enhanced VCO Service**

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## Summary

Ultratec, Inc. requests clarification of the Federal Communications Commission's (FCC's) rules on Telecommunications Relay Services (TRS) with respect to the provision and reimbursement of "Captioned Telephone," ("CapTel"), an enhanced Voice Carry Over (VCO) service. CapTel uses voice recognition and other advanced technologies that can facilitate and enhance the use of relay services by a substantially underserved portion of the relay user population.

Title IV of the Americans with Disabilities Act (ADA) mandates the provision of relay services that are *functionally equivalent* to traditional voice communication telephone services. To this end, Congress directed the Commission to take actions that would encourage the development of improved relay technologies. In accordance with this directive, in March of 2000, the FCC took significant actions to enable new technologies – speech-to-speech and video relay – to take their place beside older technologies.

In this Petition, Ultratec now comes forth to propose that the Commission permit implementation of and reimbursement for a new technology, the CapTel service. This service offers a highly advanced technological solution that can assist the Commission in its quest to achieve telephone functional equivalency for individuals with hearing disabilities. To this end, Ultratec requests (1) expedited approval from the Commission to allow for the recovery of costs associated with the provision of this service and (2) a ruling that will outline Commission standards that are not applicable to CapTel. Ultratec believes the public will be best served by expedited access to this advanced technology.

## **I. Overview**

Ultratec's commitment to provide functionally equivalent telecommunication access to consumers with hearing and speech disabilities spans more than twenty-five years. During the last fifteen years, Ultratec has undertaken specific measures to research and develop technologies that can assist TRS providers with solutions to the remaining barriers that prevent true, real-time functionally equivalent TRS calls. This research and development effort has culminated in the subject of this petition regarding the Captioned Telephone (CapTel).

Ultratec requests that the FCC recognize CapTel as an enhanced VCO service within the scope of Title IV's definition of TRS as a telephone transmission service that is eligible to receive reimbursement from the interstate TRS fund managed by the National Exchange Carrier Association (TRS Fund Administrator).<sup>1</sup>

Ultratec believes, and the Commission has stated, that the intent of Title IV of the Americans with Disabilities Act (ADA) and the Commission's minimum standards implementing that Title is to allow for implementation of new, advancing technologies that will further the goal of functional equivalency.<sup>2</sup> We believe that once the Commission is aware of the capabilities of CapTel, it will grant this request for clarification of its rules and reimbursement for CapTel's usage by TRS providers.

## **II. How Does Captioned Telephone Work?**

A Captioned Telephone (CapTel) is a telephone with a text display that allows the user to directly dial the party he/she is calling, listen to that party speak, and simultaneously read captions of the conversation on one standard telephone line. A communications assistant (CA)

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<sup>1</sup> Ultratec wishes to clarify that it is not seeking classification of the CapTel service as a mandatory component of relay, but rather as an optional service eligible for interstate cost recovery.

<sup>2</sup> *In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Report and Order and Further Notice of Proposed Rulemaking*, CC Dkt. No. 98-67, FCC 00-56 at ¶137 (March 6, 2000) ("Improved Services Order").

using specially developed voice recognition technologies generates the captions. The CapTel is not a TTY; rather it is a telephone designed to allow the user to have natural back and forth conversations with captioning support.

The CapTel service works by having the CapTel user simply dial the number he or she wishes to call. The user is automatically connected to a CapTel CA at the relay service. The relay equipment then automatically connects the user's line to a second outgoing line from the relay service to the called party. There is no need to set up the call by first dialing an 800 or 711 exchange, nor is there any interaction at all with the CA. The CA then uses state-of-the-art voice recognition technology developed specifically for CapTel, allowing the captions to appear nearly simultaneously with the caller's spoken words. This technology, called "Fastran," is specifically designed to use voice recognition for only one voice: the CA's. When a call comes in, instead of *typing* what the caller says, the CA repeats or re-voices what the caller says and the computer automatically transcribes it from the CA's voice into text, which is then transmitted directly to the user.

While off-the-shelf speech-to-text software is not, by itself, a viable solution to the TRS typing speed requirement, voice recognition through Fastran is very accurate. This technology, specifically developed for the relay environment, is tailored for the CA's individual voice and not for all the different voices involved in relay calls. Because the captions are generated using voice recognition technologies specifically designed for this task, the result is near-real time transcriptions of the call, i.e., the CapTel displays word-for-word text of everything the called person says. Unlike existing VCO, users can *listen* to the called person's voice while reading a transcription on the CapTel's built-in display. CapTel users can use any residual hearing they have to hear over the phone, and still read the captions if they need clarification. Throughout

this process, the CA is completely transparent, does not participate in the call, nor interrupt the parties to ask one to slow down or repeat.

When words or proper names come up that the computer does not recognize the CA simply types in the correct word, and then continues re-voicing. By replacing human typing with high-speed computer voice recognition, Fastran enables relay conversations to take place that are much easier, far more accurate, and significantly faster than conversations that rely on CA typing. Through the use of Fastran, CapTel offers an excellent technical solution for meeting the FCC's required minimum of sixty words per minute for CA transcription. As will be noted below, current trials CapTel in Wisconsin and Maryland reveal the ability to transcribe in excess of 140 wpm with accuracy rates of 98% or higher.

### **III. The CapTel Service Falls Within the Scope of Title IV of the ADA**

#### **1. CapTel Falls Within the Definition of TRS under 47 C.F.R. § 64.601(7)**

Section 225 defines TRS as:

“[t]elephone transmission services that provide the ability for an individual who has a hearing impairment or speech impairment to engage in communication by wire or radio with a hearing individual in a manner that is functionally equivalent to the ability of an individual who does not have a hearing impairment or speech impairment to communicate using voice communication services by wire or radio. Such term includes services that enable two-way communication between an individual who uses a TDD or other nonvoice terminal device and an individual who does not use such a device.”<sup>3</sup>

At the time that it enacted Title IV, the Senate Committee reporting on the legislation explained that although relay systems that existed at the time of the Act's passage represented the current state-of-the-art, the ADA was “not intended to discourage innovation regarding telecommunications services to individuals with hearing and speech

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<sup>3</sup> 47 U.S.C. § 225(a)(3); See also 47 C.F.R. § 64.601(7), which contains virtually the same definition, substituting “TDD” with a reference to “text telephone.”

impairments.”<sup>4</sup> Rather, in the interest of ensuring that the relay user population benefits from “new, more advanced, and more efficient technology,”<sup>5</sup> Congress directed the Commission not to take action that would “discourage or impair the development of improved technology.”<sup>6</sup> Congress’s directives reflect an understanding of the need to support the development and implementation of improved relay technologies, as they become available. Accordingly, the Commission has the obligation to implement whatever measurable standards are necessary “to ensure that hearing and non-hearing individuals have equivalent access to the Nation’s telephone networks.”<sup>7</sup>

The scope of what constitutes TRS has, in fact, evolved over time. Although the first ten years of the Act’s implementation were largely focused on what has since become known as “text-to-speech” relay services, the Commission more recently has added several new services and technologies to the definition of TRS. Specifically, the Commission, in its March 6, 2000 Report and Order (known as the Improved Services Order), concluded that two very different types of services – speech-to-speech relay and video relay – fall within Title IV’s relay definition, and as such are reimbursable as TRS services. In that proceeding, the Commission acknowledged that the overall goal of TRS – to provide telecommunications services that are functionally equivalent to voice services to the greatest extent possible – is “a continuing goal that requires periodic reassessment.”<sup>8</sup> It explained that “[t]he ever-increasing availability of new services and the development of new technologies continually challenge [it] to determine what

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<sup>4</sup> S. Rep. No. 116, 101<sup>st</sup> Cong., 1<sup>st</sup> Sess. 78 (1989). Similarly, the House Committee echoed these sentiments when it urged the Commission not to adopt regulations implementing Title IV that “have the effect of freezing technology or thwarting the introduction of a superior or more efficient technology.” H. Rep. No. 485 Part 4, 101<sup>st</sup> Cong, 2<sup>nd</sup> Sess. 66 (1989).

<sup>5</sup> S. Rep. No. 116 at 78.

<sup>6</sup> 47 U.S.C. §225(d)(2).

<sup>7</sup> S. Rep. No. 116 at 81.

specific services and performance standards are necessary to ensure that TRS is functionally equivalent to voice telephone service.”<sup>9</sup>

In its Improved Services Order, the Commission established that TRS, as defined by Title IV, is not limited to services using TTYs. Concluding that the reference in the statute to text telephones was “illustrative” only, and “not exhaustive,” of the types of services that are within the scope of TRS,<sup>10</sup> the Commission explained:

“Because the purpose of section 225 is to give people with hearing or speech disabilities access to the telephone network, and because Congress realized that to fully participate in society one must be able to call friends, family, businesses and employers, *section 225 must be read to apply to any service that allows individuals with hearing and speech disabilities to communicate by wire or radio.*”<sup>11</sup>

In the interest of keeping open the door to new and advanced technologies that can enhance TRS, the Commission further stated that it would consider the extent to which new individual services fall within the definition of TRS through individual petitions for such determinations.<sup>12</sup>

Ultratec submits this petition in accordance with the Commission’s directive in its Improved Services Order. As noted above, we seek a determination that the CapTel service falls within the definition of TRS, in light of the FCC’s prior determination that section 225 can encompass various types of services to allow individuals with hearing disabilities to communicate by wire or radio. Submission of this petition is consistent with the Commission’s overall objective to provide TRS users with telephone service that is functionally equivalent to service available to conventional voice telephone users.

## **2. CapTel is an Enhanced Version of VCO under 47 C.F.R. §64.601(9)**

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<sup>8</sup> Improved Services Order at ¶4.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.* at ¶13.

<sup>11</sup> *Id.* at ¶13 (emphasis added).

<sup>12</sup> *Id.* at ¶13.

The Commission's rules on TRS define voice carry over (VCO) as

[a] reduced form of TRS where the person with the hearing disability is able to speak directly to the other end user. The CA types the response back to the person with the hearing disability. The CA does not voice the conversation.<sup>13</sup>

Ultratec invented and patented VCO for "dual party relay systems" in 1990 so that a person could use his or her own voice to speak directly to a party through relay and have the operator relay text in the other direction. In its very first Report and Order on TRS, the FCC mandated the provision of VCO as a required relay service needed to achieve functional equivalency.<sup>14</sup> However, the original implementation of VCO was limited by the technology available at the time. Using new, advanced technologies, including voice recognition and simultaneous digital voice and data transmission, Ultratec has continued to evolve the original VCO concept into a significantly more functionally equivalent form called CapTel. There are a number of ways that CapTel offers enhancements over plain VCO:

First, the VCO technology currently in place utilizes one standard phone line upon which either text or voice (but not both) may be transmitted. Standard VCO does not allow the individual with a hearing disability to make use of his or her residual hearing to hear what he or she can of the other party's spoken dialogue and environmental sounds. Unless the user uses 2-line VCO, which requires two phone lines and conference calling capabilities, the current VCO technology prevents an individual with some ability to hear sound, from hearing anything on the line. In contrast, the simultaneous transmission of both voice and text over one telephone line enables the CapTel user to hear the other party and any background noises. This is particularly

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<sup>13</sup> 47 C.F.R. §64.601(9).

beneficial if the relay user has residual hearing or can make use of hearing assistive technologies such as hearing aids, cochlear implants and other amplifying devices.

A second enhancement is that, with CapTel, the CA does not type the response back to the individual with a hearing disability. The CA in a CapTel environment utilizes highly customized voice recognition technology. Rather than type, the CA re-voices what is said into his/her trained computer generating real-time transcriptions of the hearing party's spoken dialogue. In this manner, CapTel increases the speed and accuracy of the communicated response. For example, in ongoing trials in the States of Wisconsin and Maryland, the average CapTel CA transcribes via voice recognition well over 140 words per minute (many over 180 wpm) with an error rate of less than 2%. Moreover, the transcription of what is said is 98% verbatim. This is a huge improvement over traditional relay in which CAs average 60 words per minute and a much higher error rate.

A further improvement of CapTel over current VCO is called "dial-through." "Dial-through" eliminates the time and burden of having to set up a call through the CA by allowing the CapTel user simply to dial the number of the person being called. In a call placed with CapTel, there is no interaction of any kind with the CA by either the user or the called person. The CA's only function is to transcribe the called person's voice into text. Other than a delay of a few seconds to connect the CapTel CA to the call, the call proceeds like a traditional voice call.

#### **IV. Prior FCC Filings Submitted by Consumers Highlight Common, Consistent Problems with TRS that are Eliminated for CapTel VCO Users**

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<sup>14</sup> *Telecommunications Services for Individuals with Hearing and Speech Disabilities, and the Americans with Disabilities Act of 1990, Report and Order and Request for Comments*, 6 FCC Rcd 4657 (1991).

At the same time that the Commission issued its Improved Services Order, it released a Further Notice of Proposed Rulemaking (FNPRM), which sought comments on additional ways in which TRS could be improved.<sup>15</sup> The National Association of the Deaf-Telecommunications Advocacy Network (NAD-TAN) submitted comments to the FCC in response to that FNPRM on May 5, 2000. In these comments, the NAD-TAN shared “ten common, consistent problems that exist in our nation’s relay service that must be resolved to bring about functional equivalence in telecommunications access.”<sup>16</sup> Five of the ten problems cited were:

- Slow and typed transmission of spoken words
- Inability of hearing individual to speak at a normal pace with frequent requests by the CA to repeat
- Gaps of silence for hearing party while waiting for response
- Constant reminder of third party involvement
- Failure to transmit in real-time in both directions

With CapTel service, each and every one of the above concerns is eliminated.

Others have raised similar concerns about the need for functional equivalency in comments to the Commission. For example, in comments filed in response to VISTA’s petition for reconsideration of the required TRS typing speed, Self Help for Hard of Hearing People (SHHH) urged that the industry “take responsibility to bring relay up to a point of functional equivalency.”<sup>17</sup> SHHH noted the “need to be thinking forward in TRS technology” and urged “efforts to facilitate a more ‘natural’ conversation pace through faster TTY speed, speech-to-text TRS software and other means.”<sup>18</sup> Similarly in response to the VISTA petition, NAD-TAN and the Consumer Advocacy Network (CAN) reported that they “have been

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<sup>15</sup> Improved Services Order at ¶¶ 125 *et. seq.*

<sup>16</sup> NAD-TAN and CAN TRS FNPRM comments (May 5, 2000).

<sup>17</sup> SHHH response to VISTA petition, pg. 2.

<sup>18</sup> *Id.*

unwavering and consistent in asking the FCC and the states to make Telecommunications Relay Services (TRS) the functional equivalence of telephone conversations experienced by people who can hear or speak.”<sup>19</sup>

Ultratec believes that CapTel technology provides the technological solution to address all of the above concerns for VCO users.

## **V. The Commission’s Rules Support Implementation of Advanced Technologies**

### **1. Achieving Faster Typing (Transmission) Speeds**

Allowing CapTel to be a reimbursable relay service would bring the Commission one step closer to meeting its goal of functionally equivalent relay services. In its Improved Services Order, the Commission acknowledged that “[i]t is not possible for a call with a low typing speed to be functionally equivalent to a voice call.”<sup>20</sup> The Commission explained “slow operator typing is frustrating to users, [as it] causes hang-ups leading to higher costs for ratepayers because of the added length of the call and the increase in multiple calls.”<sup>21</sup> In order to improve the flow of relay conversations, the Commission amended its rules to include the minimum CA typing speeds to 60 words per minute. The Commission made a point of noting that such a rule change was feasible because there are “technological solutions that are now available that can increase the speed of the transmission.”<sup>22</sup> In fact, the Commission was correct, in that the CapTel service will facilitate meeting this and much higher typing speeds.

### **2. Achieving Functional Equivalency for Calls to Interactive Menus and Recorded Messages**

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<sup>19</sup> NAD-TAN and CAN response to VISTA petition at 2.

<sup>20</sup> Improved Services Order at ¶73.

<sup>21</sup> *Id.*, FCC cites comments submitted by the California Deaf and Disabled Telecommunications Program.

<sup>22</sup> *Id.* at ¶73 n.150. In support of this statement, the Commission cited to Ultratec’s comments, which discussed the Fastran technology, referred to later in this Petition.

The Improved Services Order concluded that in order to be functionally equivalent, TRS must provide consumers with hearing and speech disabilities access to interactive phone menus and other recorded messages.<sup>23</sup> The Commission noted the ubiquitous nature of these telephone services, and adopted three measures designed to facilitate TRS access to them.<sup>24</sup> At the same time, the Commission acknowledged that even these measures were not likely to provide full access to menu systems and recorded messages because often times they are too fast to allow TRS users to respond within the needed time.<sup>25</sup> The Commission referenced the ongoing Section 255 obligation to provide access to these services, and noted “the technologies to make these calls functionally equivalent are still being developed.”<sup>26</sup>

CapTel’s real-time transmission speed and interactive capabilities can make compliance with the FCC’s new mandate for access to interactive menus and recorded messages more functionally equivalent for VCO relay users. For interactive menus, CapTel users can directly press selections on their CapTel telephone keypad for the menu option they want during the same call; no call back or additional assistance from the CA is necessary. For recorded messages, CapTel users can receive the entire text transcription of a voice recording at a swift speed and leave a voice message directly during the same call.

### **3. Improving Relay for Existing Users/Expanding the Relay User Population**

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<sup>23</sup> *Id.* at ¶92.

<sup>24</sup> Specifically, the Commission’s new rules (1) require the use of a “hot key” for CAs to notify callers that they have reached a recording or interactive menu, (2) allow the recording of these messages and the retention of these recordings for the length of the call, and (3) prohibit additional charges for repeated calls needed to obtain full messages. Improved Services Order at ¶¶94-96, codified at 47 C.F.R. §64.604(b)(6).

<sup>25</sup> Improved Services Order at ¶92.

<sup>26</sup> *Id.* at ¶93.

In the FNPRM accompanying its Improved Services Order, the Commission acknowledged the considerable interest of consumers in new, technically feasible, technologies to achieve functionally equivalent relay service and sought further comment on these technologies.<sup>27</sup> Additionally, in its discussion on the need for additional outreach, the Commission noted its interest in expanding the reach of TRS to all potential users, including senior citizens that have lost their hearing late in life.<sup>28</sup> By allowing an advanced new technology such as CapTel to be fully recognized as a reimbursable TRS service, the Commission will be taking action wholly consistent with its dual goals of improving TRS for those who already use this service, and of promoting an enhanced form of relay that can reach those who are not yet fully served by Title IV of the ADA. CapTel is a perfect example of a technically feasible VCO capability that provides functionally equivalent service to those who can speak, yet have a hearing loss and need text transcription.

## **VI. CapTel Wisconsin Trial Project**

CapTel will soon be ready for real-time deployment. The State of Wisconsin is currently conducting technology trials of Fastran and CapTel. The trials began October 1, 2001 and will continue until approximately June 30, 2002. One hundred Wisconsin residents who use TRS are participating in the Fastran trial using their current text devices, and over 106 individuals are using Captioned Telephones to make CapTel calls. Both the Captioned Telephones (i.e., the equipment) and the captioning service are available to all trial participants at no cost to them in exchange for their feedback.<sup>29</sup>

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<sup>27</sup> *Id.*

<sup>28</sup> *Id.* at ¶134.

<sup>29</sup> The State of Maryland initiated a CapTel trial March 5, 2002, but data on that trial has not yet been compiled.

## 1. CapTel Trial Participant Demographics

CapTel trial participants have self-identified the degree of their hearing loss. Many of the CapTel trial participants reported they lost their hearing later in life, and that they have severe to profound hearing loss. Some have used relay in the past, while a majority of the trial participants have not. The individuals who have not used relay had stopped using the phone, had others make calls for them, or were attempting to hear what they could on amplified phones with difficulty. A majority of the trial participants use some form of hearing assistive technologies such as hearing aids, cochlear implants or other assistive listening devices. However, the trial has a number of participants who have no residual hearing, and rely solely on the captioned text for conversation comprehension. All individuals use their own voices to speak for themselves on their calls. The following provides a breakdown of the participant demographics for the Wisconsin trial:

### a. Hearing Loss (self identified)

Mild	2
Severe	14
Severe/Profound	48
Profound	42

### b. Amplification Use

Hearing aid user	79
Cochlear Implant user	16
Amplified Telephone user	72

### c. Age Group

Under 25	7
26-40	28
41-60	48
61+	21

## 2. State Distribution of CapTel Trial Participants

CapTel Trial Participants were recruited from all areas of Wisconsin covering large metropolitan areas, as well as small rural communities.

Albany	1	Fort Atkinson	1	Oak Creek	3
Appleton	1	Franklin	2	Oconomowoc	1
Ashland	1	Green Bay	2	Oregon	1
Baraboo	1	Janesville	1	Racine	4
Bayfield	1	Jim Falls	1	Rice Lake	1
Bayside	1	Johnson Creek	1	Rio	1
Beldenvil	1	Kansasville	1	Sullivan	1
Cato	1	LaCrosse	1	Sun Prairie	2
Chippewa Falls	1	Lodi	1	Verona	4
Colgate	1	Madison	24	Waukesha	3
Cuba City	1	McFarland	1	Wautoma	1
Delavan	1	Menasha	2	Wauwatosa	1
Dousman	1	Menomonie	2	West Allis	1
Eagle	1	Middleton	2	Withee	1
East Troy	2	Milwaukee	6	Grafton	1
Eau Claire	3	Mondovi	1	Saukville	1
Elk Mound	1	Monona	1		
Ellsworth	2	Mt.Horeb	1		
Fondulac	1	Neenah	1		

## 3. Trial Survey Results in Brief

Four months into the CapTel trial, a survey of trial participants was conducted. One hundred surveys were mailed to Wisconsin CapTel Trial Participants with an enthusiastic 62% response rate. Of those that responded:

- 91% stated calls flow smoothly via CapTel for person-to-person calls.
- 86% reported smooth call handling of recordings/interactive menu systems.

- 100% of those who work outside the home reported CapTel assists them in doing their job more independently and effectively.
- 89% responded that they are more comfortable using the telephone due to CapTel.
- 93% reported people they call enjoy communicating with them through CapTel.
- 95% stated CapTel gives them more control of their conversation.
- 75% noted that they make more telephone calls since using CapTel.
- 93% reported overall satisfaction with their CapTel trial experience.

To date, the assessment by those involved in the Wisconsin trial indicates that Trial Participants have experienced a highly successful TRS application. (See Appendix A for testimonials from CapTel trial participants.)

#### **4. The Natural Conversation Flow of CapTel Benefits Users**

In the short term, the CapTel trial already has proven that there is now viable technology that comfortably allows those who speak but do not hear well, new means of accessing the telephone network. The Wisconsin trial has shown that CapTel access is valuable to individuals of all ages (trial participants range in age from 8 to 93), whether calling friends after school, conducting business calls, or staying in touch with otherwise isolated loved ones. CapTel allows the opportunity for functionally equivalent telephone conversations, in a way that those who are able to simply pick up a handset, dial a number and conduct voice conversations have always experienced.

Most notably, CapTel has been shown to significantly enhance the ability of relay users to succeed in the work setting. The FCC has acknowledged the critical role that TRS serves in enabling those who rely on text-based communications as a result of a hearing disability to secure and maintain gainful employment. As the FCC stated in its Improved Services Order, “TRS is a critical tool for employment. If people with hearing

and speech disabilities cannot communicate by telephone, their ability to compete and succeed in today's job market is threatened.”<sup>30</sup>

Unfortunately, many individuals with hearing disabilities in professional fields choose to use staff interpreters or refer calls to fellow co-workers rather than use the current relay system for business calls. Some turn to less interactive means such as email to conduct business. In contrast, CapTel trial participants report that this new technology has made a significant difference in their ability to conduct business by telephone independently. One evaluator, echoed by many trial participants, stated,

“I really enjoy the flexibility and convenience the CapTel offers. As a cochlear implant user, I am able to listen to the other party and refer to the captions as needed. The flow of the conversation is more natural than a relay call, and the other party is unaware of the operator. More importantly, I can perceive the emotional state of the other party over the telephone such as anger, joy, nervousness, etc. The CapTel also saves me money in the long run. Rather than use two-line VCO, which requires two separate phone lines, only one phone line is needed for the CapTel.

As a clinical research project manager, I work with hundreds of clinical sites throughout the world. The CapTel allows me to contact these sites with speed and ease of use. In the long run, I find that other people are much more comfortable with CapTel calls as opposed to relay calls.

As a result of the CapTel, I am much more comfortable on the phone as opposed to the past. Most importantly, I no longer prefer e-mail over the telephone, and other people have taken notice!” - CapTel User, Clinical Research Project Manager

Another CapTel trial participant described how it has made a difference in the tasks she took on for her employer. Prior to CapTel, she did not make many business calls at work. This trial participant wrote,

“My boss is getting use to me calling our vendors and co-workers. He is planning to install another phone line.... I actually feel like an administrative assistant to my boss. I'm late-deafened and love the phone!”

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<sup>30</sup> Improved Services Order at ¶7. The FCC went on to note that, “[i]mproving the quality of TRS will enhance employment opportunities for people with hearing and speech disabilities and may contribute to a decrease in their unemployment rate.” *Id.*

One CapTel Trial Participant is also a Vocational Rehabilitation Counselor. She wrote:

“Last fall I was about to start another fruitless search for a phone that offered a higher power of amplification and hopefully better clarity of speech as well. I was then invited to be a tester for CapTel. I FINALLY FOUND A PHONE THAT MET MY NEEDS!!...Other technologies cannot provide the benefits of CapTel for me. I function as a hearing individual and desire to utilize my residual hearing as much as possible. The TTY and Relay service are not efficient technologies for me when communicating with hearing consumers. The other parties may not be familiar with the voice Relay service and be reluctant to use it, and typing on the TTY is very time consuming. If one has poor keyboarding skills or manual difficulties, the TTY becomes even more labor intensive. The CapTel Captioning Service also offers a natural, smooth flow of wording that the Relay service cannot provide. There are no interferences such as those that frequently occur when using Relay.”

“As a consumer and professional with a very significant hearing loss, I strongly support the CapTel phone. Individuals like myself should not have to cringe when using the phone, knowing the frustration that occurs. We should be able to perform phone tasks independently, and with mental and physical ease. The CapTel also increases employment options for individuals with significant hearing losses. So many of my clients shy away from jobs that may involve even minimal phone tasks because of the fear and frustration they experience when using the phone. CapTel would be an appropriate accommodation for those who have not been able to benefit from currently available phones with amplification features, or from the other technologies.” -CapTel User with severe-profound, progressive hearing loss, DVR Counselor

Numerous additional CapTel Trial Participants’ personal testimonials touting the benefit of this service appear in Appendix A.

## **VII. Clarification Regarding Minimum Mandatory Standards That are Not Applicable to CapTel**

In order to allow consumers to benefit from CapTel’s offering as a non-mandatory VCO enhancement in the soonest possible time frame, Ultratec seeks clarification of the extent to which certain minimum standards are applicable to CapTel service. As the Commission is aware, clarification for certain minimum mandatory relay standards that were not applicable to other relay forms has been granted in the past where

the Commission has had an interest in encouraging the deployment of new relay technologies.<sup>31</sup>

Ultratec believes that certain minimum standards do not apply to the CapTel service. Specifically, because CapTel is merely a subset of the VCO service, standards pertaining to video relay (e.g., qualified interpreters), speech-to-speech relay, and hearing carry over (HCO) are not applicable to the provision of this service. Ultratec requests clarification of this point.

### **VIII. Conclusion**

We look forward to working collaboratively with relay providers to assist in bringing new opportunities to individuals not yet served by Title IV of the ADA, as well as to those who have benefited from relay services, but who still seek a more functionally equivalent service offering. CapTel can go a long way toward achieving functional equivalency for individuals who use or are potential users of VCO services. In addition, as our telecommunication systems become more automated, access to fast-paced menus confronted daily by telephone users will become even more commonplace and will challenge TRS providers to accommodate consumers efficiently and effectively. CapTel can readily provide access to these services for VCO users. With implementation of CapTel, those with hearing disabilities who seek a simple telephone and functionally equivalent access to the telecommunications network will finally be given the opportunity to experience such service. We look forward to your expedient action on this petition.

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<sup>31</sup> Most recently, the Commission relaxed certain minimum requirements for video relay service, to encourage its early deployment. *In the Matter of Telecommunications Relay Services And Speech-to-Speech for Individuals with Hearing and Speech Disabilities*, Order, CC Dkt. No. 98-67, DA 01-3029 (rel. Dec. 31, 2001).

Respectfully Submitted,

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April 12, 2002

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### **Appendix A: CapTel Testimonials from Current Trial Participants**

Previous to using CapTel, if my son called me, I always got frustrated because I couldn't understand what he was saying. I would end up turning the phone over to my daughter to relay for me, and of course I never got the whole conversation because of that. Last night that changed. I was able to talk to my son for over a half hour (thank you Ultratec for letting me test this), and thoroughly enjoyed every minute of it. My son also commented on how much nicer it was to be using the CapTel services, and how it was frustrating at the end of the call.

CapTel User- late-deafened in her 20's, now in her 40's

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Hi, just a note to let you know the impact that the new CapTel phones have had on my life. I have been gradually losing my hearing over the past 40 years. The loss is so severe at this point that I am a cochlear implant candidate. These last two years have been the most frustrating of my life, while I can still hear with an aid, I can no longer discriminate sounds, mainly peoples' voices. The phone has been an impossibility for me, even the simple things like making appointments, scheduling repairs, anything that required a phone, required me to drive to the location just to make or cancel an appt. I have not been able to take any directions over the phone, no numerical sequences, in fact this last year I just refuse to answer the phone except for emergencies. It has caused an independent woman to shy away from the hearing world...

Now, that I am in the CapTel study, I feel in control again, I can make my own appointments, schedule repairs as needed, but most important, I can talk with my children and grandchildren by phone, I can call my sister or neighbor and schedule a date to go to the show. It is wonderful. I hated to give up hearing other people's voices and relying on a captioner for her interpretation of a conversation. I have the added advantage of using this device, when I do have a cochlear implant. Hearing some sound really helps me to determine what the other person is saying and with the CapTel phone, it clarifies everything.

I think the CapTel phone is the new and coming aid for the hearing impaired. I can't wait for them to include a recording device, so that when I am not home, I will be able to read my messages immediately, instead of having someone come over to hear them and translate them for me. I can see this machine being used for the moderately hearing impaired to the severely hearing impaired, any age, they just need to be able to read. Who knows what can happen in the future with this new technology, I guess it is safe to say anything can happen. HURRAH!

CapTel user, late-deafened at age 18, now in late 50's

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I really enjoy the flexibility and convenience the CapTel offers. As a cochlear implant user, I am able to listen to the other party and refer to the captions as needed. The flow of the conversation is more natural than a relay call, and the other party is unaware of the operator. More importantly, I can perceive the emotional state of the other party over the telephone such as anger, joy, nervousness, etc. The CapTel also saves me money in the long run. Rather than use two-line VCO, which requires two separate phone lines, only one phone line is needed for the CapTel.

As a clinical research project manager, I work with hundreds of clinical sites throughout the world. The CapTel allows me to contact these sites with speed and ease of use. In the long run, I find that other people are much more comfortable with CapTel calls as opposed to relay calls.

As a result of the CapTel, I am much more comfortable on the phone as opposed to the past. Most importantly, I no longer prefer e-mail over the telephone, and other people have taken notice!

CapTel User, Clinical Research Project Manager

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I really like this phone! And I'm sure I will like it even more, the more I use it because I will feel more comfortable with it. I have used the Relay system in the past with a voice-carryover phone and I find the CapTel phone so much easier to use. I love being able to dial direct without having to call a relay operator and I love being able to hear the person I am talking to because I can actually understand a lot of what the person is saying. But if I should miss something, the captions are there for me to look at! No more "GA!" Although I sometimes forget and say "GA!" :>) It just makes using the telephone so much easier for me. I do want you to know how much I have appreciated the Relay. Before I got my cochlear implant, I totally relied on the Relay and voice-carryover for several years. It was so wonderful to be able to talk to family members and friends and make my own appointments, reservations, etc. And now it is even better with this new phone, which is so easy to use and takes less time! The "corrections" do slow down the captions a bit and I am wondering if they are really necessary. I can usually figure out what was meant and if I didn't, I could ask the person I am talking to for clarification. It will be interesting to see if other people feel this way. So THANKS Relay for a wonderful job!

CapTel User, late-deafened, retired Hospital trauma nurse

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I got to tell you how my family, friends, myself and especially my hearing husband feel about using this CapTel service. They just love it! They are so happy to hear my "own voice" and to be able to have a normal conversation with me. According to my callers, they say that this is fun, fast and comfortable rather than using the relay service. (Sorry Relay but I'm still using some relay system anyway.)

It is going to give me a lot of hard effort to try calling "hairstylist" or "doctor" to make appointment because I am so shy to speak to. I do speak well, and I am profound deaf. So I am not used to speaking to stranger on phone. Cap Tel is so new to me but I am going to try soon!

The most amazing thing is when I called my Mom, my two small hearing children wanted to talk to their "Grandma," I can read the captions, knowing what they are talking about.

Cap Tel service is absolutely wonderful, great challenge for all of us. Especially how things changed since I graduated from High School in 1974! Keep up an excellent work Cap Tel!

CapTel trialist – profoundly deaf

I'm very happy to be in this trial. I love this phone and it's almost exactly what up I've been waiting for.

CapTel user

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CapTel has given me something I never dreamed possible - The opportunity to talk to my children as if they could hear. Thank you.

Mother of 2 CapTel Trial Participants

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I just spoke with my 90-year-old grandmother, using the captioned telephone. It was great! We were able to have a regular, smooth-flowing conversation. I'm so excited. Now I can call her and plan outings, change existing plans, ask her if she needs anything from the store, ... all of those little things, which had become almost impossible. My grandmother is enthusiastic about the phone, too. I think that this phone will do a lot to lift her spirits. Thanks so much for your help.

Granddaughter of 90-year-old CapTel Trial Participant

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I love using my Captioned Telephone!! This is (a) great service for those who talk well but can NOT understand what the voice said most of the times.

CapTel User - Mother of 5 young children

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I talked with our son - who has been in a Bethesda, MD hospital with a broken hip from a bicycle accident!!!!-And he was absolutely amazed by the ease of talking back and forth.

What was really nice was that my husband also got on the phone for a few minutes-he is hearing--and could talk and hear what our son was saying. This never works when using the relay!!

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CapTel User- Senior Citizen

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Making appointments via CapTel is much, much more effective as well as efficient. Very excited! Talked to two people one of whom had never talked to me on the phone before and without problems

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CapTel User- state DPI employee

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CapTel is the nicest thing yet to happen to me to help me make calls. Some of my friends do express their happiness with my using CapTel and not having to say "Go Ahead."

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CapTel User- Senior Citizen

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The CapTel has been a wonderful help to me and I am very happy to be able to use it. The units will also be great for people who are severely hard of hearing and who have been reluctant to use a regular telephone because it is too difficult for them to understand everything that is being said-even with the volume control that many regular telephones have. Now, all a person needs to do is read or refer to the printed words as they appear on the CapTel screen. People that I call via the CapTel are also comfortable with this new technology. Today one of my friends said that she felt it was so much more efficient and an improvement over a regular Relay call. She also thought that the sound was very clear. One of my young grandsons is very computer knowledgeable and when I first called him using the CapTel and explained a bit about the technology, he was almost as excited and enthusiastic as I continue to be.

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CapTel User- late-deafened at age 40, now in her 70's

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As an individual with a severe-profound hearing loss and very poor speech discrimination, I have very limited options in terms of the selection of hearing aids and telephone equipment. In regards to phone usage, for many years I managed the best I could with phones that had a volume control feature in the handset. In spite of the tremendous advances in technology in recent years, the options for hearing aid and telephone selections did not increase in my situation. In my work as a Vocational Rehabilitation Counselor, I know this to be true for many of my consumers who have a severe-profound hearing loss.

My job requires extensive telephone contacts, and it is essential that I obtain accurate information in order to carry out my job duties. A recent and significant decrease in my hearing further impaired my ability to use the phone I had been using at work and home. Even before the decrease in hearing occurred, at least several times per month I would need to get assistance from a co-worker for phone tasks. They would need to either take over a phone call or listen to voice mail messages as I was unable to get the information myself. This is not efficient use of my work time, nor of my co-workers. Nor is it the

best service to the consumers. Sometimes I was unaware that I misunderstood the contents of a phone contact and inconveniences would result, i.e., incorrect appointment date/time, incorrect contents in paperwork. It is also frustrating and time consuming for callers to have to repeat information to me

Last fall I was about to start another fruitless search for a phone that offered a higher power of amplification and hopefully better clarity of speech as well. I was then invited to be a tester for CapTel. I FINALLY FOUND A PHONE THAT MET MY NEEDS!! I received tremendous benefits from the high level of amplification and the clarity it offered. When I am having difficulty hearing and/or understanding speech, I am able to utilize the Captioning Service. There were many calls and voice mail messages in which I would not have been able to understand the full contents without assistance from the Captioning Service. Since I have had the CapTel at work, I cannot recall having to ask a co-worker for assistance. I AM INDEPENDENTLY PERFORMING PHONE TASKS!!

Other technologies cannot provide the benefits of CapTel for me. I function as a hearing individual and desire to utilize my residual hearing as much as possible. The TTY and Relay service are not efficient technologies for me when communicating with hearing consumers. The other parties may not be familiar with the voice Relay service and be reluctant to use it, and typing on the TTY is very time consuming. If one has poor keyboarding skills or manual difficulties, the TTY becomes even more labor intensive. The CapTel Captioning Service also offers a natural, smooth flow of wording that the Relay service cannot provide. There are no interferences such as those that frequently occur when using Relay. I am also usually unable to receive Relay calls from deaf consumers due to difficulty hearing and understanding the speech of the Relay operator. I have had to use the Captioning Service by CapTel in order to understand the contents of Relay messages.

As a consumer and professional with a very significant hearing loss, I strongly support the CapTel phone. Individuals like myself should not have to cringe when using the phone, knowing the frustration that occurs. We should be able to perform phone tasks independently, and with mental and physical ease. The CapTel also increases employment options for individuals with significant hearing losses. So many of my consumers shy away from jobs that may involve even minimal phone tasks because of the fear and frustration they experience when using the phone. CapTel would be an appropriate accommodation for those who have not been able to benefit from currently available phones with amplification features, or from the other technologies.

CapTel user with severe-profound progressive hearing loss, DVR Counselor

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## **Appendix B: Press Articles**

From the newsroom of Journal Sentinel, Milwaukee, Wisconsin, Saturday,  
November 24, 2001

New technology may speed calls for disabled

State will be first to test Ultratec system

By LEE BERGQUIST  
of the Journal Sentinel

Wisconsin's telephone relay system is testing two new technologies that are expected to speed calls for people with hearing and speech disabilities.

The statewide system is trying out two products from Ultratec Inc. in Madison as part of Wisconsin's \$4 million program to provide telephone services for the hearing- and speech-disabled.

"Improving access to communications and information is important to everyone who wants to be successful in the information age," said Rebecca Heidepriem, secretary of electronic government for Wisconsin.

About 63,000 telephone relay calls are made each month in Wisconsin. Wisconsin and five other states contract with Hamilton Relay Service of Aurora, Neb., to process calls.

Wisconsin will be the first state in the country to test Ultratec's latest technologies to speed communications for people with hearing and speech problems.

The most important feature will be the use of voice recognition technology that will let calling assistants, who act as middlemen in telephone conversations, transmit text messages faster.

But first a primer on the state's telephone relay system, which was created in the early 1990s:

Text telephone relay - or TTY - lets people with a hearing or speech disability call 711, and, using a special phone, they type what they want to say. A calling assistant reads the message and repeats it to whomever is being called.

While TTY phones and the service allow people with special needs to communicate better, the technology is slowed by spelling, punctuation and the typing speed of the calling assistant, according to Jackie Morgan, Ultratec's director of marketing.

"There are human obstacles," she said. "So what happens in many calls is that the operator says in the middle of the conversation, 'Stop. Slow down and repeat that.' It causes a real delay in the conversation."

The service also is a put-off for people who have never used it.

"In the past, hearing people have not been patient enough," said Cheri French, an interpreter for the deaf and a member of the Governor's Advisory Council on Telecommunications Relay System.

People talk at an average speed of 185 words a minute - but most people cannot type faster than 60 to 70 words a minute.

Enter new technology from privately held Ultratec, which is the world's largest manufacturer of TTY phones. One new Ultratec product, Fastran, is for companies that have government contracts to process such calls.

Calling assistants are trained to immediately repeat what a caller says to a computer-based voice-recognition system. The computer converts the caller's words to text for the person on the end of the call who uses a text display on his phone.

The technology speeds calls by 50% to 75%, the company said.

Voice recognition technology works best when it can be "taught" to understand the nuances of one voice, and that is why the technology is targeted to relay service companies.

The second product is called CapTel - or "captioned telephone." This is a phone for people who have trouble hearing. The phone can be used like a traditional phone, but also has a built-in screen that can be read as words are being processed with voice recognition technology by a calling assistant at a relay service.

The phone could also be used by a deaf person because it automatically connects to the relay service.

CapTel is especially useful for people who have difficulty hearing and can be helped by reading the text as it is being typed in virtual real time, Morgan said.

"This is important new technology," French said. "The relay system has to be able to keep up with changing technology."

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From the newsroom of the Star Tribune, Minneapolis, Minnesota, Saturday,  
November 24, 2001

Wisconsin to test voice recognition program for hearing, speech disabled

By The Associated Press

Wisconsin will be the first state in the country to test new technology designed to speed communication for people with hearing and speech problems.

The statewide telephone relay system will use two products from Ultratec Inc. in Madison as part of Wisconsin's \$4 million program to provide telephone services for the hearing- and speech-disabled.

" Improving access to communications and information is important to everyone who wants to be successful in the information age, " said Rebecca Heidepriem, secretary of electronic government for Wisconsin.

The new products will use voice recognition technology that will let calling assistants, who act as middlemen in telephone conversations, transmit text messages faster. While people talk at an average speed of 185 words a minute, calling assistants using text telephone relay, or TTY, generally type at a rate of 60 to 70 words a minute.

The technology also is slowed by spelling, punctuation and the typing speed of the calling assistant, said Jackie Morgan, Ultratec's director of marketing.

" There are human obstacles, " she said. " So what happens in many calls is that the operator says in the middle of the conversation, ' Stop. Slow down and repeat that.' It causes a real delay in the conversation."

Ultratec, the world's largest manufacturer of TTY phones, is hoping to remedy the situation with the new products.

One, called Fastran, is for companies that have government contracts to process such calls.

Calling assistants are trained to immediately repeat what a caller says to a computer-based voice-recognition system. The computer converts the caller's words to text for the person on the end of the call who uses a text display on his phone.

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